

Avancier Methods (AM) Enterprise Architecture

Analyse and rationalise
Platform Technologies

*NOT technical
infrastructure design
(see solution
architecture)*

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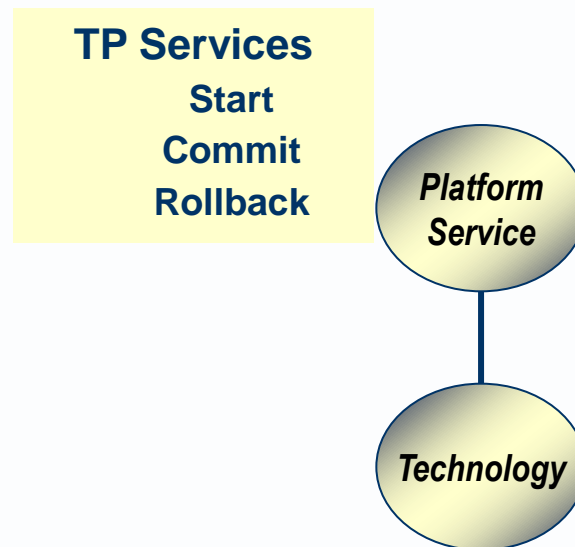
What is a Platform Technology?

- ▶ A node in the infrastructure architecture
- ▶ A single, deployable, platform app, operating system or computing device that supports business applications
- ▶ E.g. A transaction manager



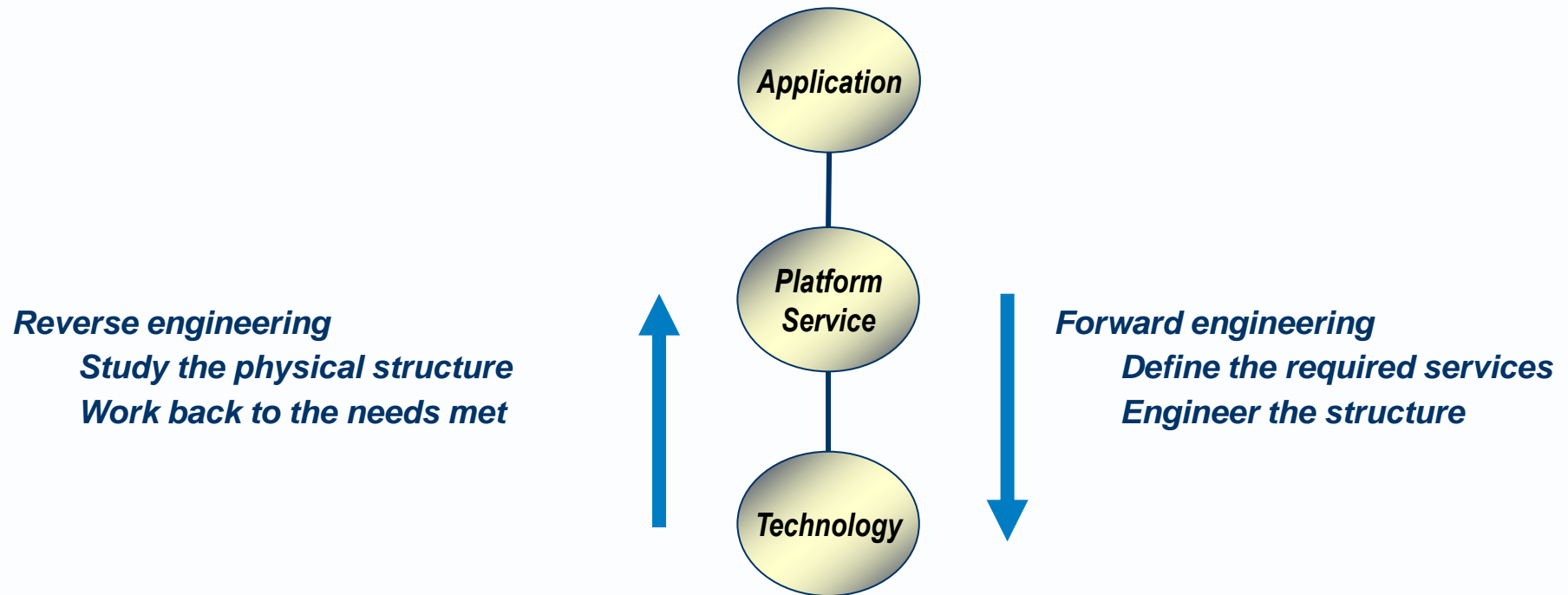
What is a platform service?

- ▶ A service provided by a Platform Technology to business apps.
- ▶ Definable by a service contract, without regard to the technology



The basis of the process that follows

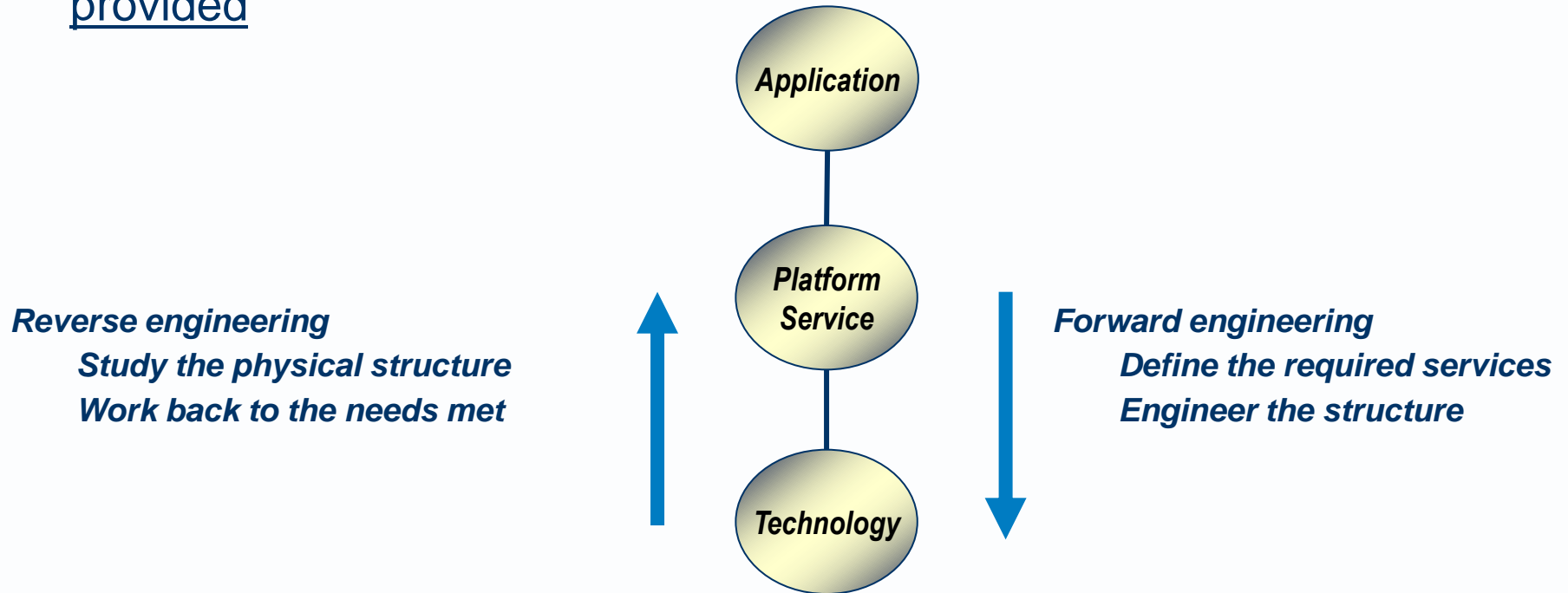
- ▶ The process that was central to TOGAF versions 1 to 7
- ▶ Phase D in TOGAF 8 Hardly visible in phase D of TOGAF 9
- ▶ You can rarely follow this process separately from consideration of other architecture domains.



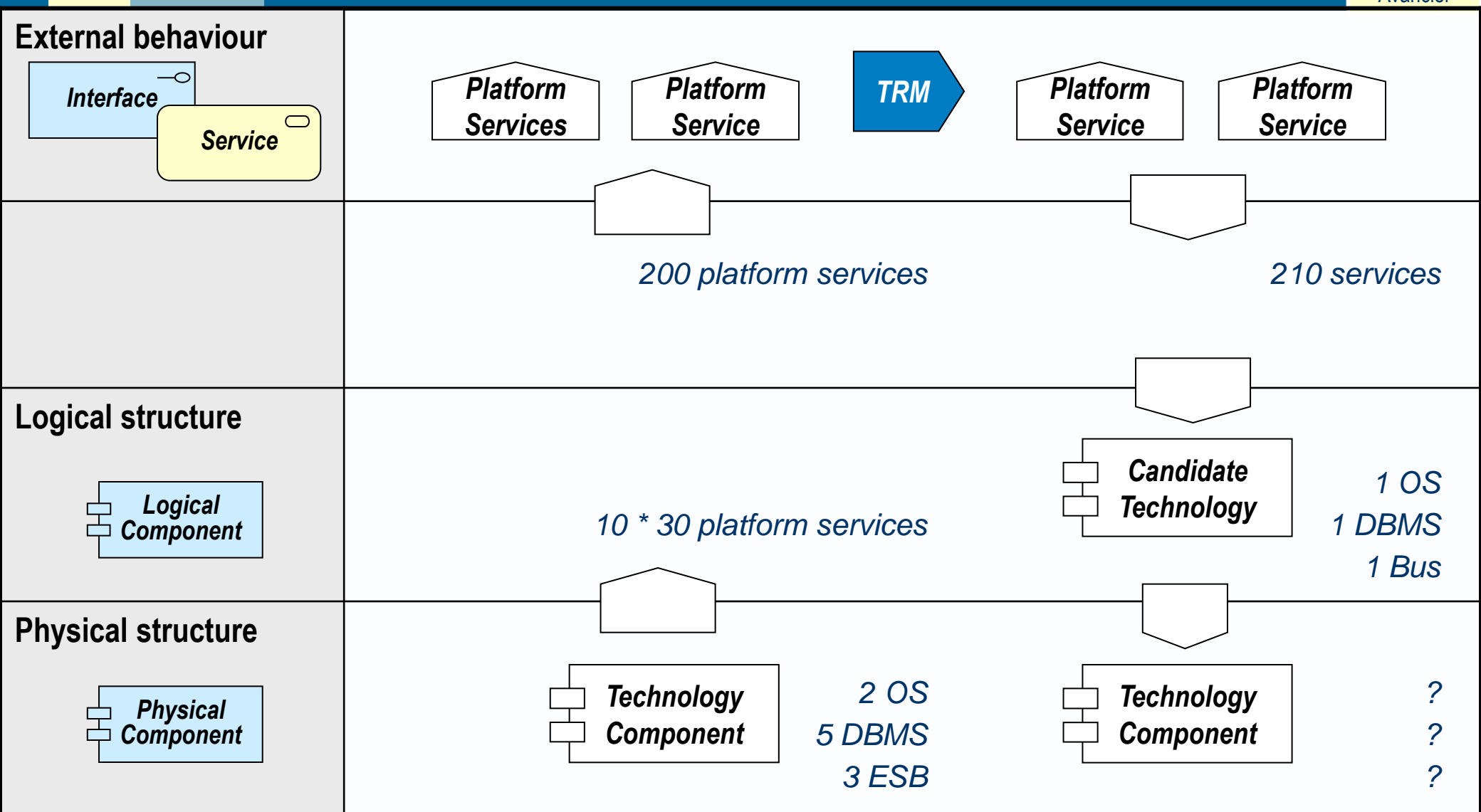
How does the process work?

- ▶ Start with current technology portfolio
- ▶ Reverse engineer a more logical view of the platform services provided

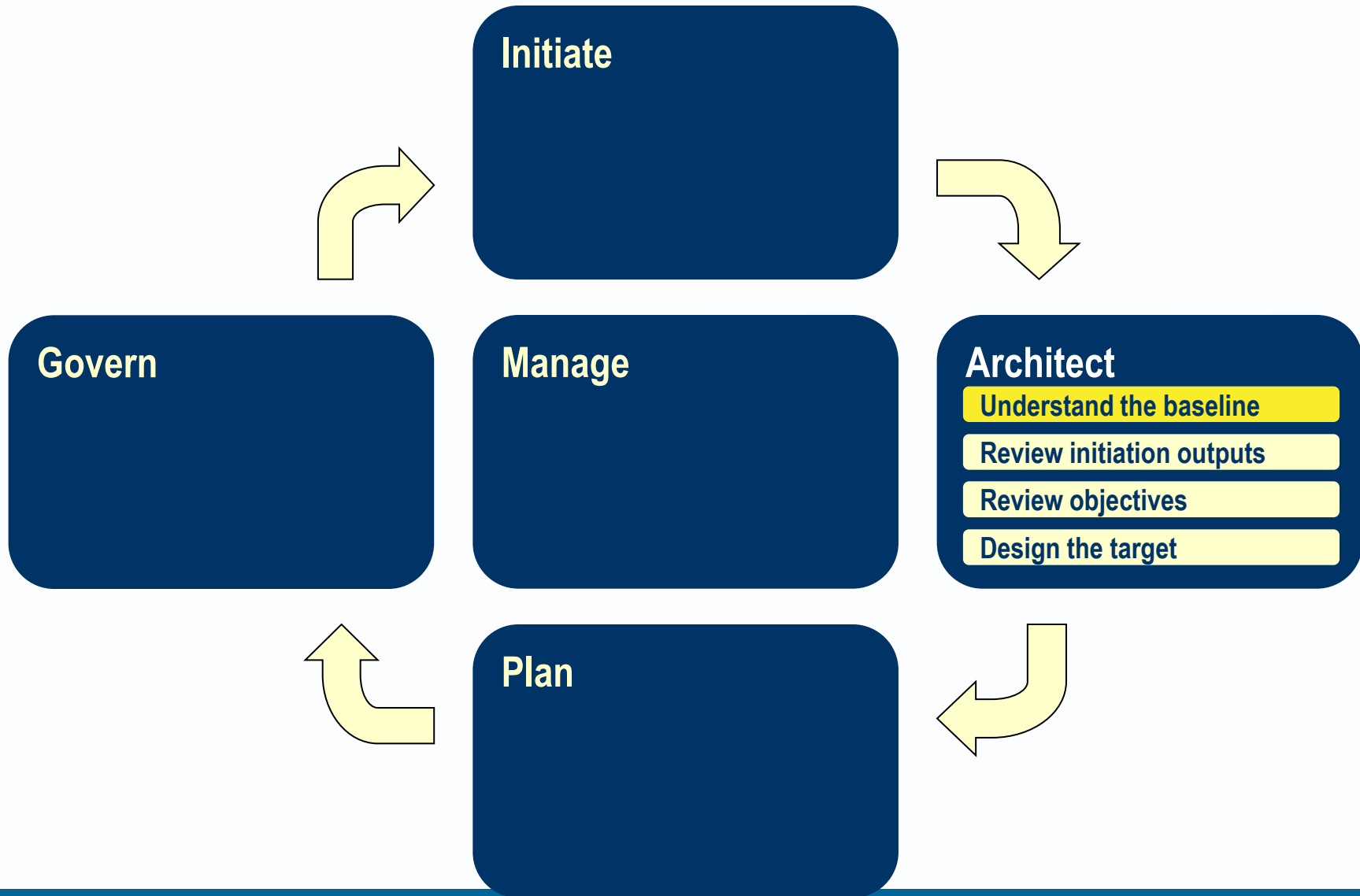
- ▶ Start with the platform services required
- ▶ Go from there to technology selection



Overview of the rationalisation approach



Where in the AM process?



- ▶ Study the existing assets
- ▶ Catalogue component types (not instances) in the baseline technology portfolio.

- ▶ Use an **Enterprise Technology Classification**, such as
 - End user tools
 - Application platform
 - Software development
 - Integration tools and middleware
 - Data management
 - Servers
 - Data storage
 - Networks
 - IT Services Management / Operations
 - Environment
 - Security



Note where several components provide the same services

▶ Data management components

- DB2
- Informix Dynamic Server
- Ingres
- Microsoft Access
- Microsoft SQL Server
- MySQL
- Oracle
- PostgreSQL

▶ Data management services

- Union
- Intersect
- Except
- Inner joins
- Outer joins
- Inner selects
- Merge joins
- Blobs and Clobs
- Common Table Expressions
- Windowing Functions
- Parallel Query
- Transaction management services
 - Transaction start
 - Transaction commit
 - Transaction rollback



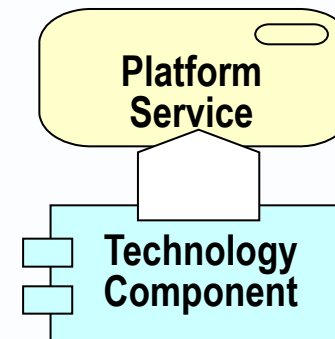
The IT management reform (Clinger-Cohen) act of 1996

- ▶ makes federal government agency CIOs responsible for
 - “developing, maintaining ... a **sound and integrated IT architecture**”.

Office and Management and Budget (OMB) circular Q-130

- ▶ refines the definition of EA and requires that it includes
- ▶ a **TRM that “identifies and describes ... services... used throughout the agency”**

- ▶ Catalogue all services provided by baseline technologies and processes to applications in a **Technical Reference Model**
- ▶ TOGAF's headings for a TRM.
 - Data Interchange Services
 - **Data Management Services**
 - Graphics and Imaging Services
 - International Operation Services
 - Location and Directory Services
 - Network Services
 - Operating System Services
 - Security Services Software
 - Engineering Services
 - System and Network Management Services
 - **Transaction Processing Services**
 - User Interface Services



TP Services
Start
Commit
Rollback

TOGAF's Technical Reference Model (TRM)

User Interface Services	Transaction Processing Services	Operating System Services	Software Engineering Services
Graphical Client/Server services	Starting a transaction	Kernel Operations	Programming Language services
Display Objects services	Co-ordination of recoverable resources in a transaction	Command Interpreter and Utility services	Object Code Linking services
Window Management services	Committing or rolling back transactions	Batch Processing services	CASE Environment and Tools services
Dialogue Support services	Controlling timeouts on transactions	File and Directory Synchronization	Graphical User Interface (GUI) Building services
Printing services	Chaining transactions together		Scripting Language services
Computer-Based Training and Online Help services	Monitoring transaction status		Language Binding services
Character-Based services			Run-Time Environment services
			Application Binary Interface services
Graphics and Imaging Services	Data Management Services	Network Services	OO Provision of Services
Graphics services	Data Dictionary/Repository services	Electronic Mail services	Object Request Broker (ORB) services
Graphical Object Management services	Database Management System (DBMS) services	Distributed Data services	Implementation Repository services
Drawing services	OO Database Management System (OODBMS) services	Distributed File services	Installation and Activation services
Imaging functions	File Management services	Distributed Name services	Interface Repository services
	Query Processing functions	Distributed Time services	Replication services
International Operation Services	Screen Generation functions	Remote Process (Access) services	Common Object services
Character Sets and Data Representation services	Report Generation functions	Remote Print Spooling and Output Distribution services	Change Management services
Cultural Convention services	Networking/Concurrent Access functions	Enhanced Telephony functions	Collections services
Local Language Support services	Warehousing functions	Shared Screen functions	Concurrency Control services
		Video-Conferencing functions	Data Interchange services
		Broadcast functions	Event Management services
		Mailing List functions	Externalization services
			Licensing services
Data interchange services	Location and Directory Services	System and Network Management Services	Lifecycle services
Document Generic Data Typing and Conversion services	Directory services	User Management services	Naming services
Graphics Data Interchange services	Special-Purpose Naming services	Configuration Management (CM) services	Persistent Object services
Specialized Data Interchange services	Service Location services	Performance Management services	Properties services
Electronic Data Interchange services	Registration services	Availability and Fault Management services	Query services
Fax services	Filtering services	Accounting Management services	Relationship services
Raw Graphics Interface functions	Accounting services	Security Management services	Security services
Text Processing functions		Print Management services	Start-Up services
Document Processing functions	Security Services	Network Management services	Time services
Publishing functions	System Entry Control services	Backup and Restore services	Trading services
Video Processing functions	Security Management services	Online Disk Management services	
Audio Processing functions	Audit services	License Management services	
Media Synchronization functions	Access Control services	Capacity Management services	
Multimedia Processing functions	Non-Repudiation services	Software Installation services	
Information Presentation and Distribution functions	Trusted Recovery services	Trouble Ticketing services	
Hypertext functions	Encryption services		
	Trusted Communication services		

Decompose the platform services to the level you care about

Data Interchange Services

Data Management Services

Data Dictionary/Repository services

Database Management System (DBMS) services

OO Database Management System (OODBMS) services

File Management services

Query Processing functions

Union

Intersect

Except

Inner joins

Outer joins

Inner selects

Merge joins

Etc.

***TOGAF's TRM example is 2 levels
does not get down to this 3rd level***

Screen Generation functions

Report Generation functions

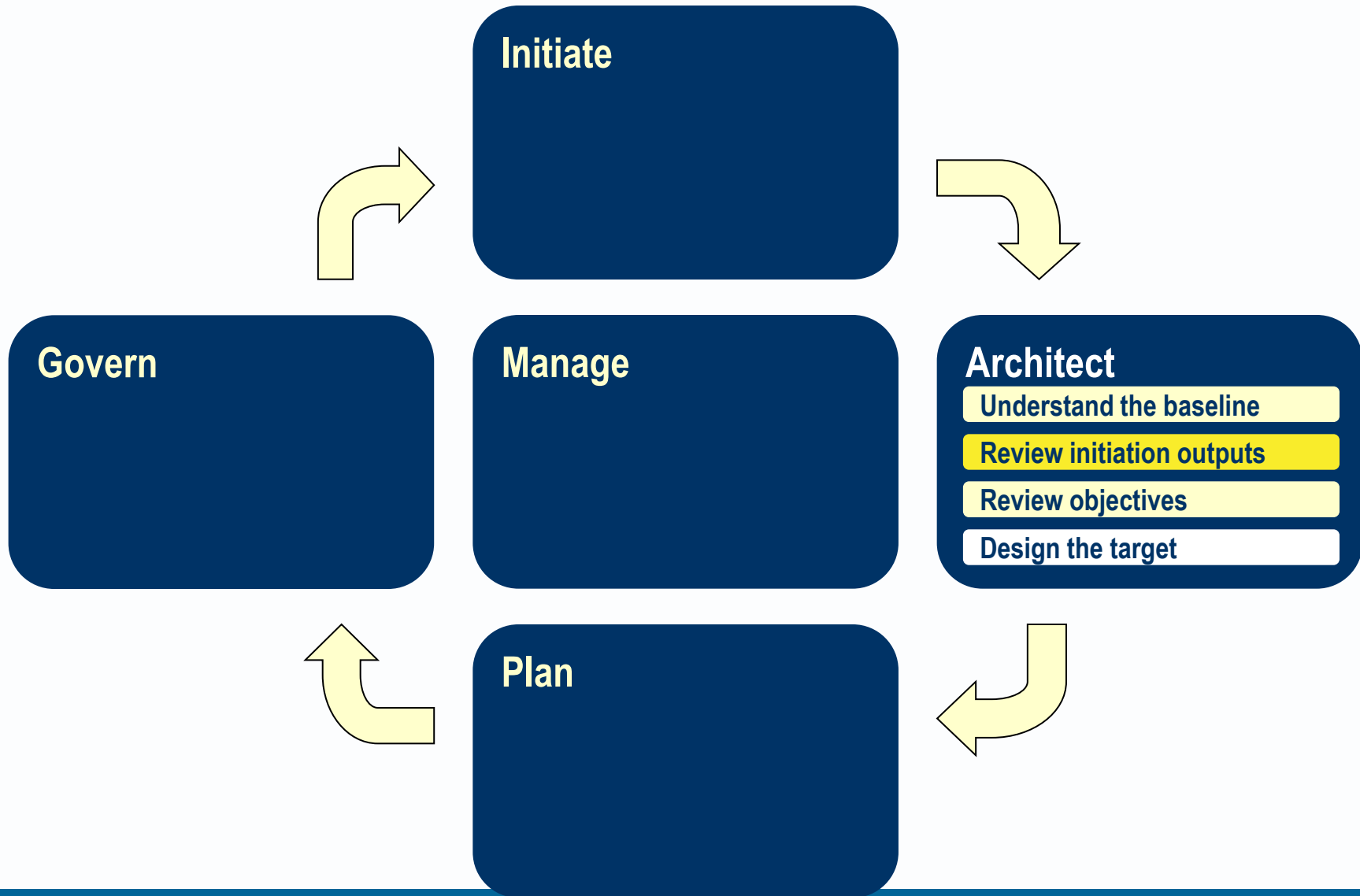
Networking/Concurrent Access functions

Warehousing functions

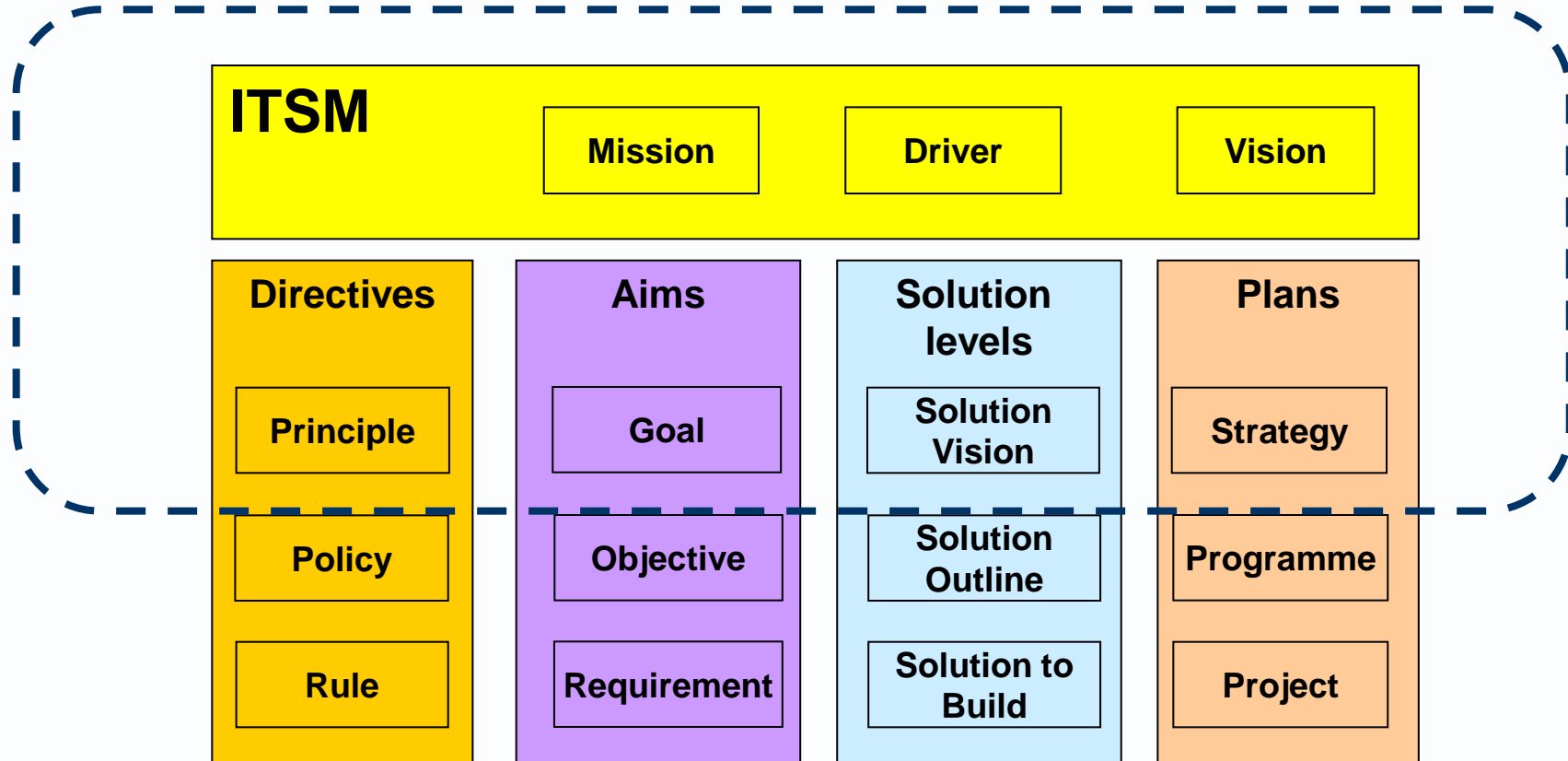
Graphics and Imaging Services

Etc.

Where in the AM process?

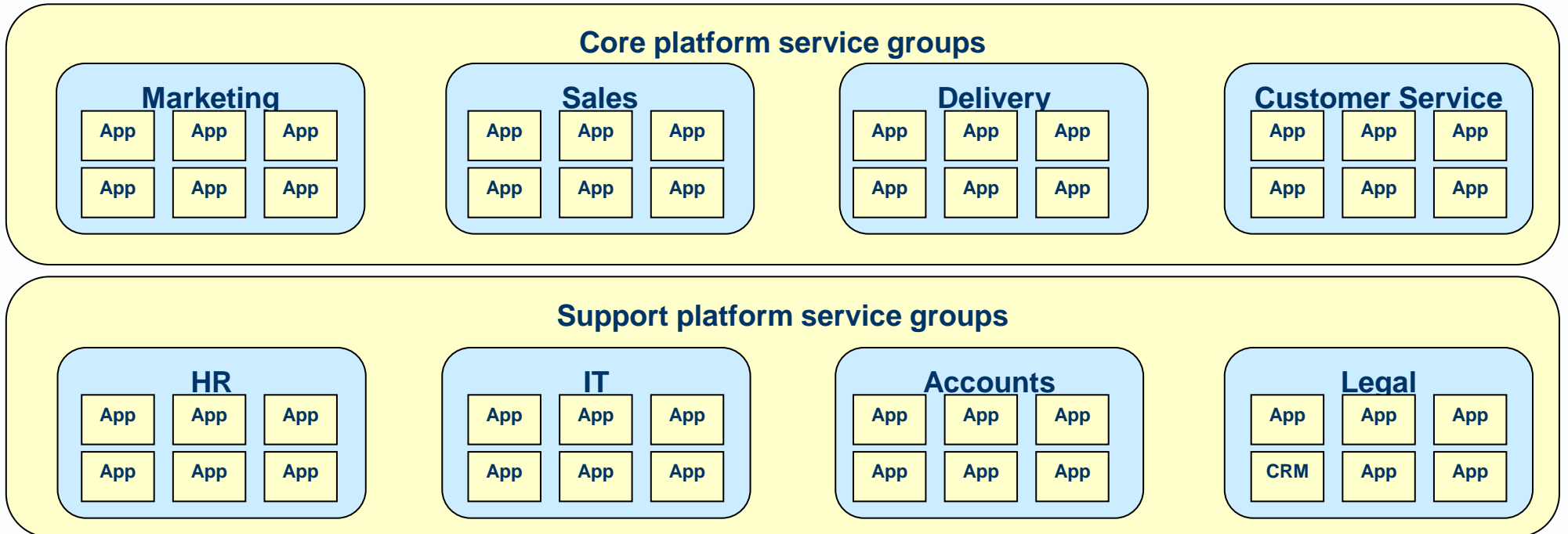


- ▶ What exists by way of principles, goals, visions etc?

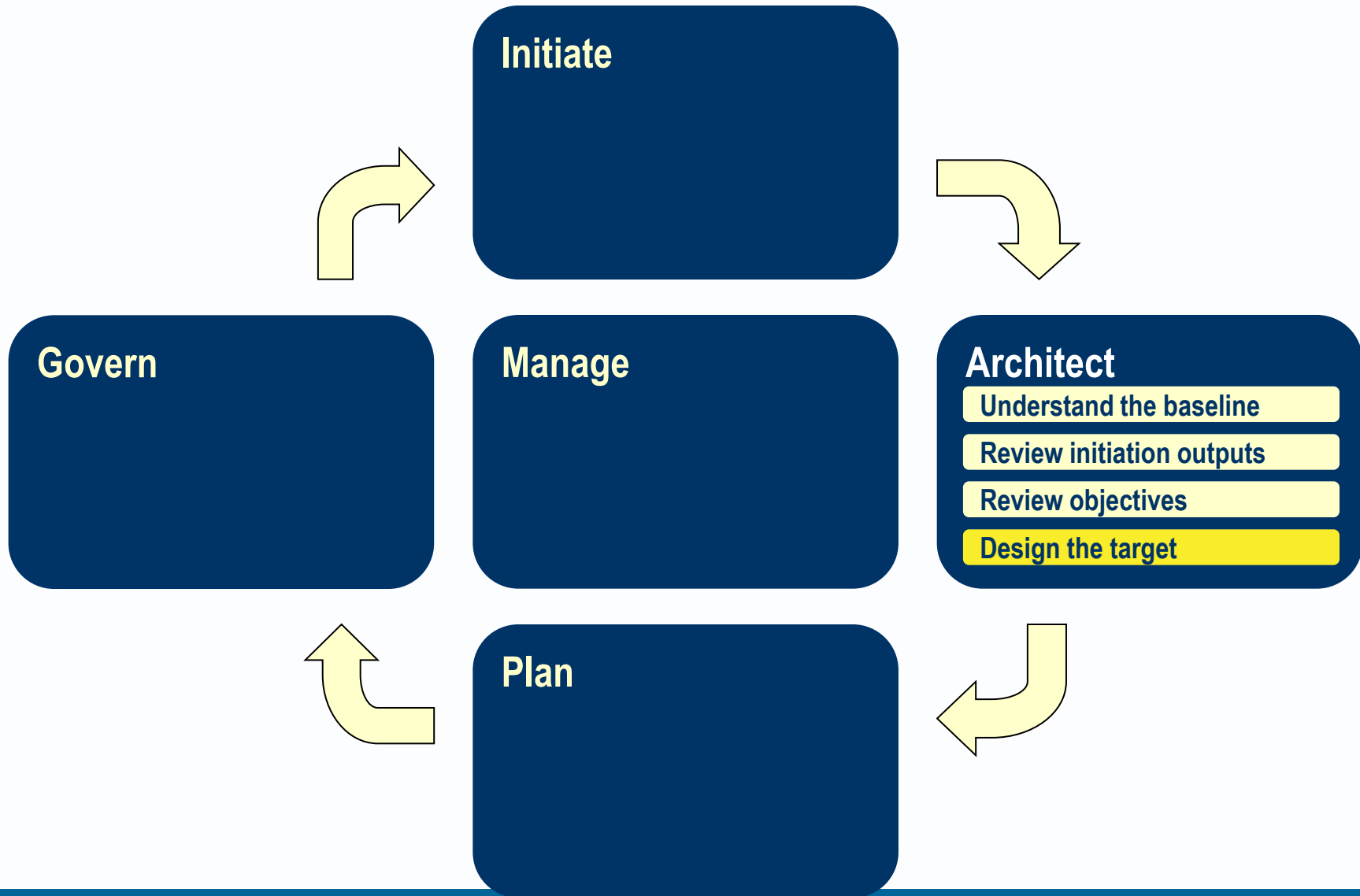


Review the application context

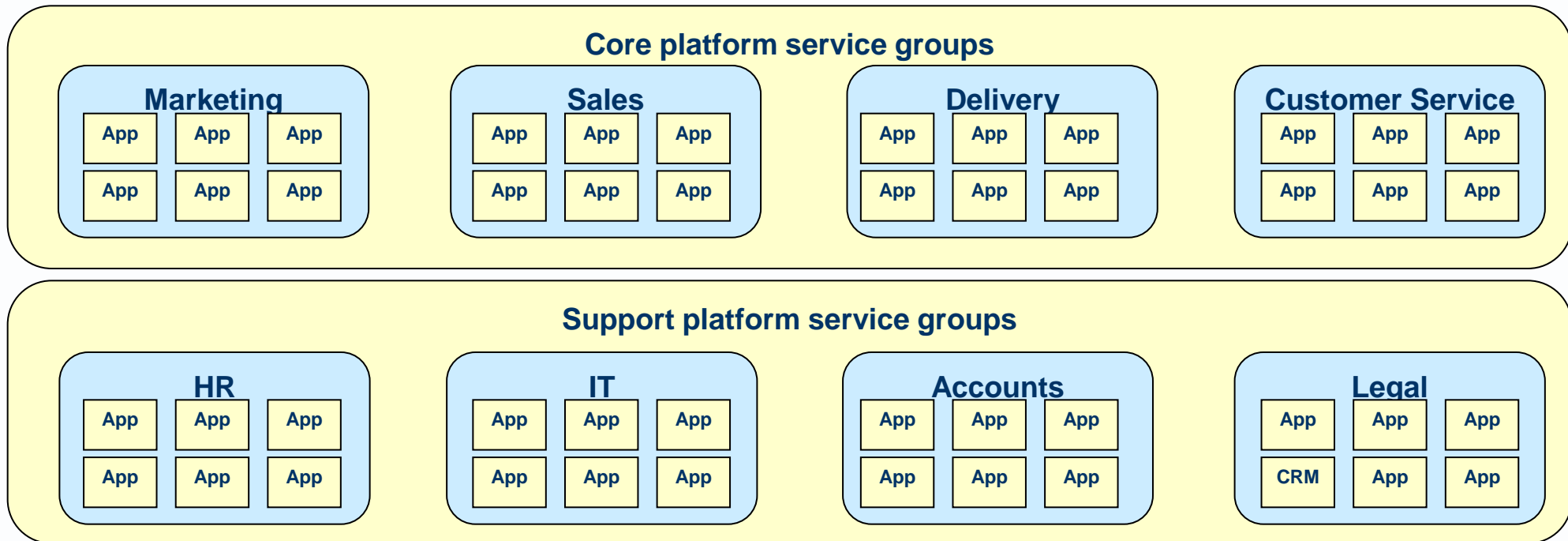
- ▶ Which applications are to supported by the infrastructure in scope?
What application road maps are there?



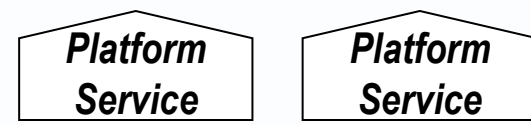
Where in the AM process?



Define target platform services

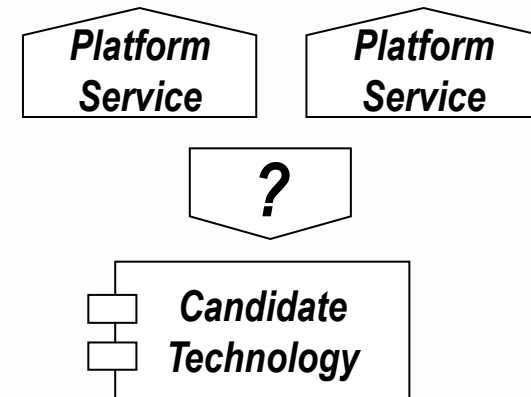


- ▶ Consider your application portfolio needs
- ▶ Remove old platform services no longer needed.
- ▶ Add new platform services now required



Group services into candidate Platform Technologies

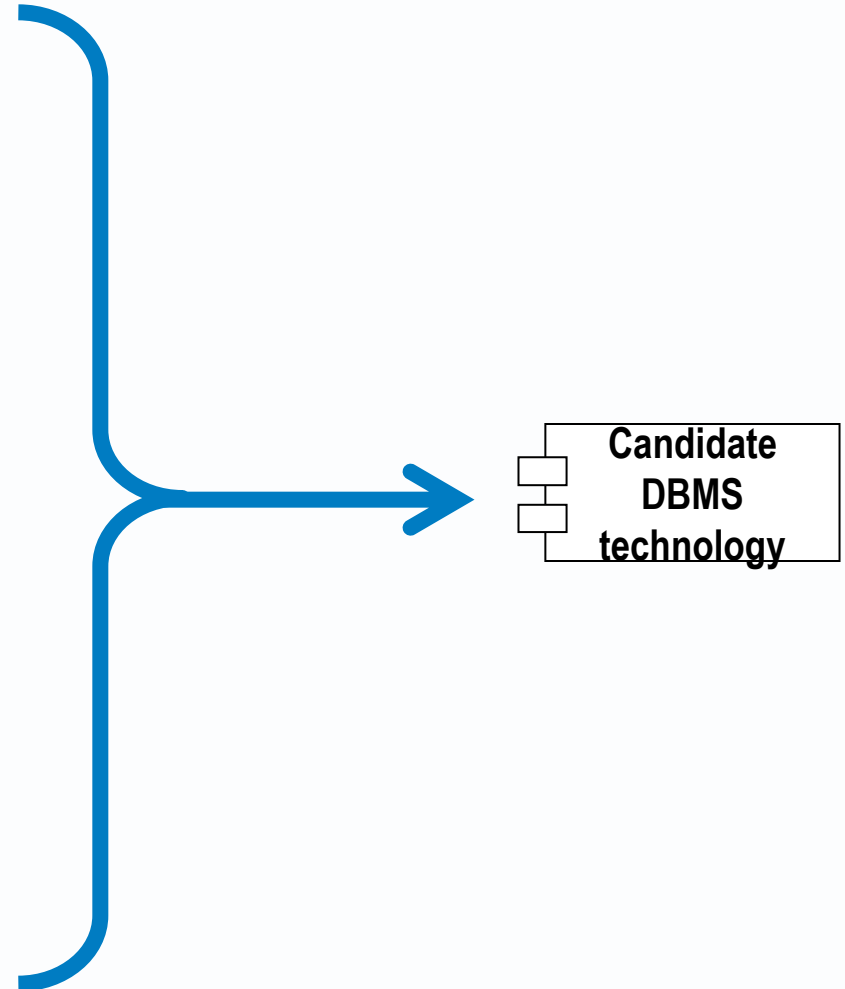
- ▶ Cluster platform services that are cohesive into a candidate Platform Technology
- ▶ In theory, services that require the same resources
- ▶ In practice, probably what you think correspondence to real technologies in the market place



E.g. Candidate data management technology

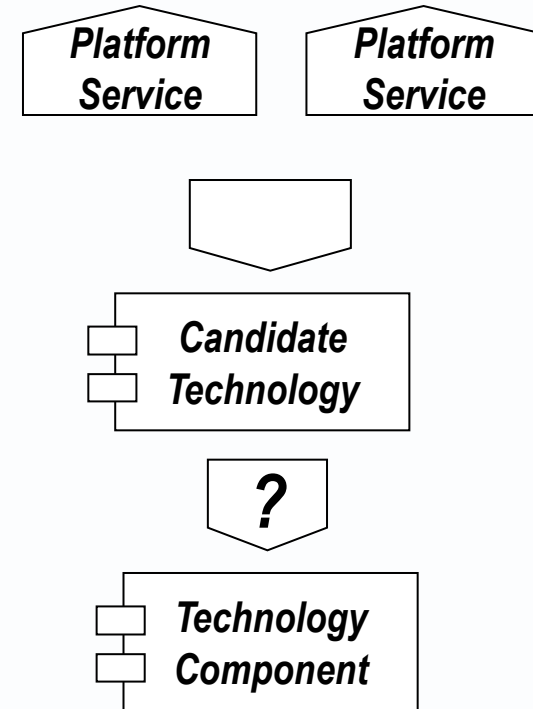
Mapping a service group to a candidate data management technology

- ▶ Union
- ▶ Intersect
- ▶ Except
- ▶ Inner joins
- ▶ Outer joins
- ▶ Inner selects
- ▶ Merge joins
- ▶ Blobs and Clobs
- ▶ Common Table Expressions
- ▶ Windowing Functions
- ▶ Parallel Query
- ▶ Transaction management services
 - Transaction start
 - Transaction commit
 - Transaction rollback



Consider candidate technologies as real technologies

- ▶ Platform services are independent of the Platform Technology catalogue.
- ▶ But sometimes, a platform service group, a candidate technology, may be implemented by one Platform Technology



Map candidate component to real components

- ▶ Does a real component provide the required service group?

Platform service group Real component	Union	Intersect	Except	Inner joins
DB2	Yes	Yes	Yes	Yes
Informix Dynamic Server	Yes	?	Yes,	Yes
Ingres	Yes	No	No	Yes
Microsoft Access	Yes	No	No	Yes
Microsoft SQL Server	Yes	Yes	Yes	Yes
MySQL	Yes	No	No	Yes
Oracle	Yes	Yes	Yes	Yes
PostgreSQL	Yes	Yes	Yes	Yes

Map candidate component to real components

► Does a real component provide the required service group?

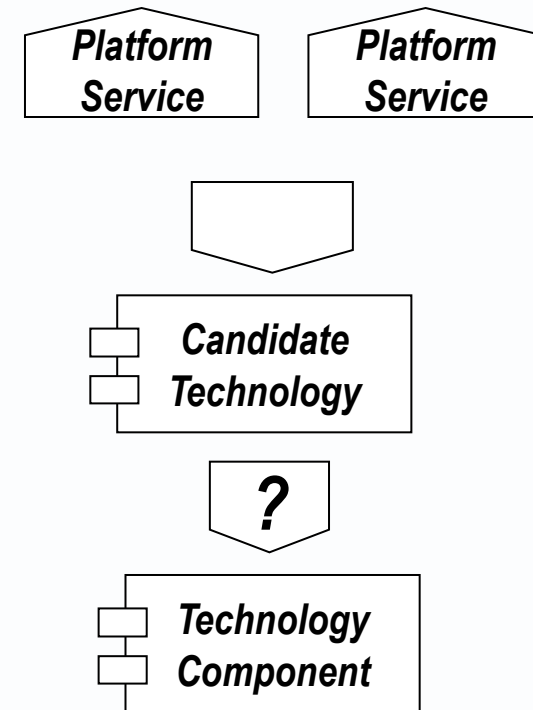
Platform service group (candidate component)	Union	Intersect	Except	Inner joins	Outer joins	Inner selects	Merge joins	Blobs and Clobs	Common Table Expressions	Windowing Functions	Parallel Query
Real component											
DB2	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Informix Dynamic Server	Yes	?	Yes, via MINUS	Yes	Yes	Yes	Yes	Yes	Yes	?	Yes
Ingres	Yes	No	No	Yes	Yes	Yes	Yes	Yes	No	No	?
Microsoft Access	Yes	No	No	Yes	Yes	Yes	No	Yes	No	No	?
Microsoft SQL Server	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
MySQL	Yes	No	No	Yes	Yes	Yes	Yes	Yes	No	No	No
Oracle	Yes	Yes	Yes, via MINUS	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
PostgreSQL	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No

- Does it meet required non-functional characteristics?
- Can we afford it and the resources to maintain and run it?

Select the real technologies

- ▶ Select technologies that will
 - support the required applications
 - provide the required platform services,
 - meet long-term cost and non-functional requirements.

- ▶ This is a convoluted process that involves juggling:
 - The requirements of old and new applications
 - Baseline Platform Technologies that cannot be changed
 - Generic services and technologies in the market place
 - Overarching principles and strategies
 - Time, cost and resource constraints on change



- ▶ The higher level classification groupings rarely change
- ▶ Lower levels may need redefinition
- ▶ The structure may need refactoring, using some affinity criterion

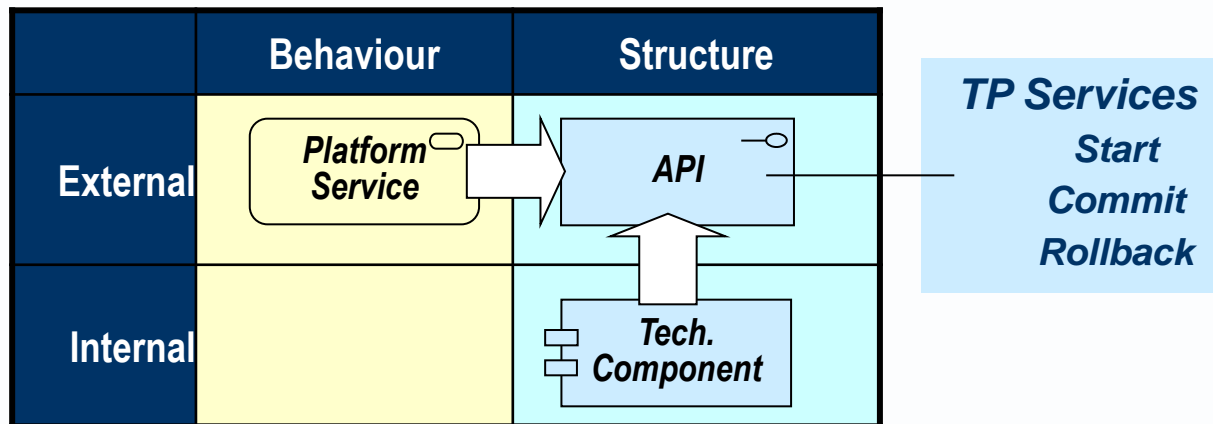
▶ **Enterprise Technology Classification**

- End user tools
- Application platform
- Software development
- Integration tools and middleware
- Data management
- Servers
- Data storage
- Networks
- IT Services Management / Operations
- Environment
- Security

Modularise the technology portfolio

- ▶ For each platform technology, define services you want
 - developers to use
 - to turn off, or deprecate

Encapsulate Platform Technologies behind logical APIs



However you do it

- ▶ This is a convoluted process that involves juggling:
 - The requirements of old and new business applications
 - Baseline technologies that cannot be changed
 - Overarching IT principles and strategies
 - Time, cost and resource constraints on change

- ▶ Also
 - Generic platform services available in the market place, defined in existing APIs

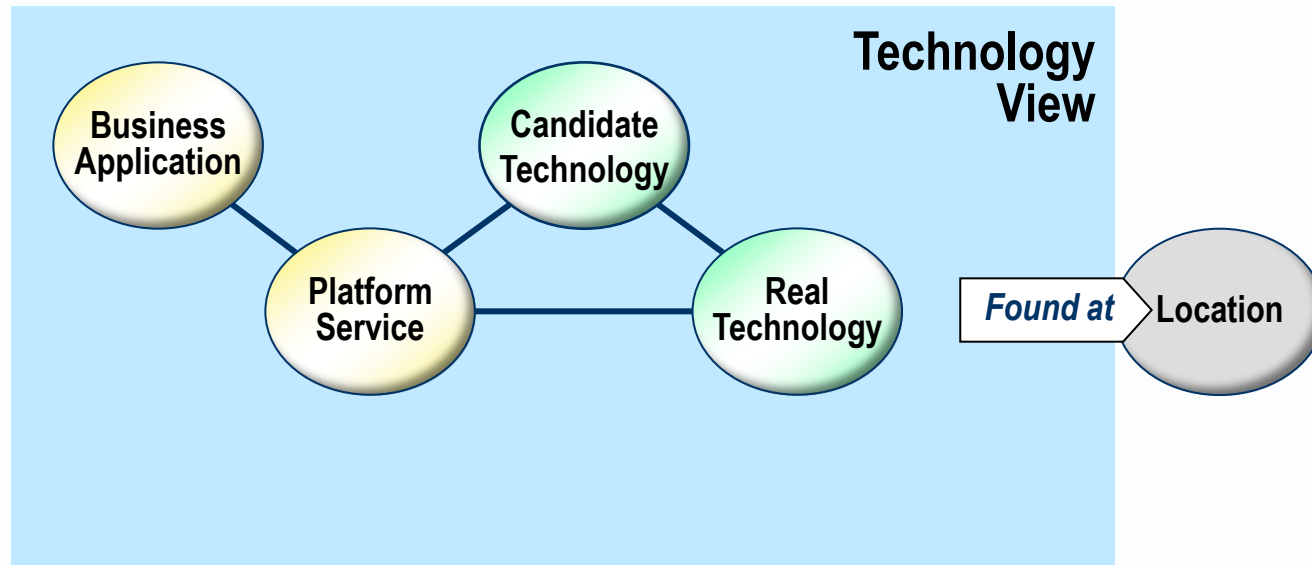
- ▶ Where real technologies provide services in a different way from your logical candidate technologies, then things get messy

Define the operational resources

Note: the operational resources may be addressed by people outside the EA team

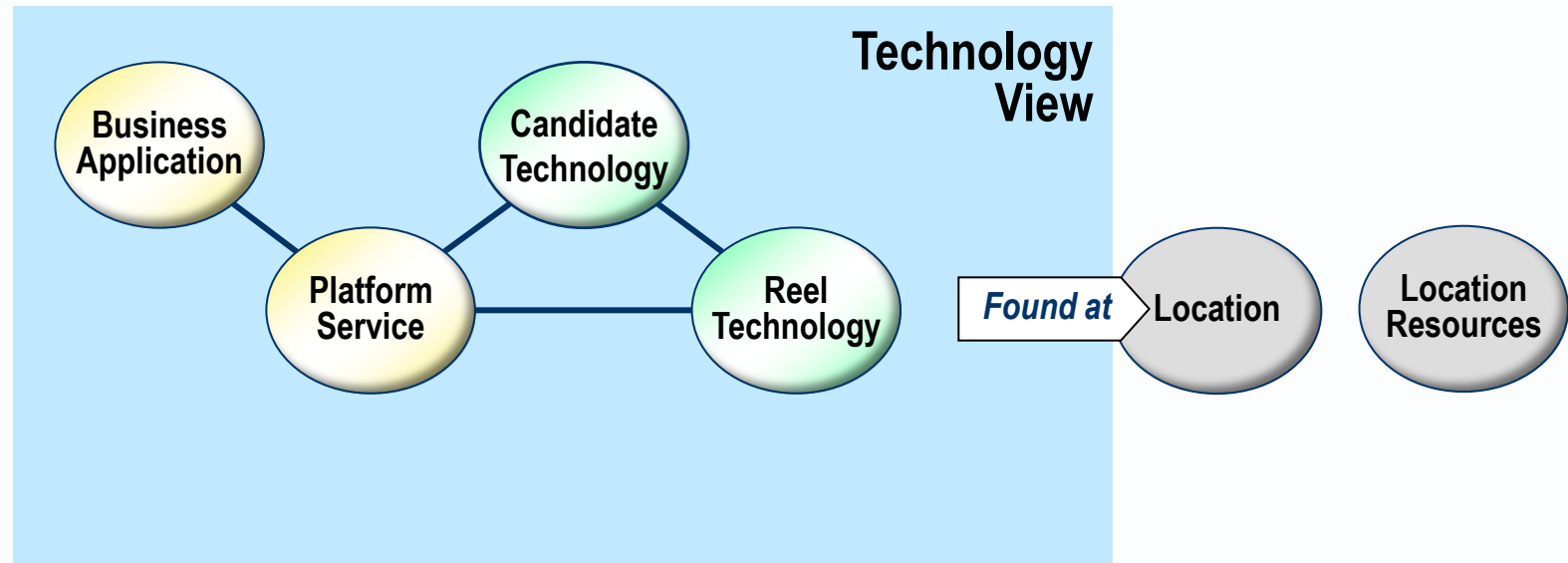
Define Platform Technology locations

Locations and operational resources may be defined by people outside the EA team

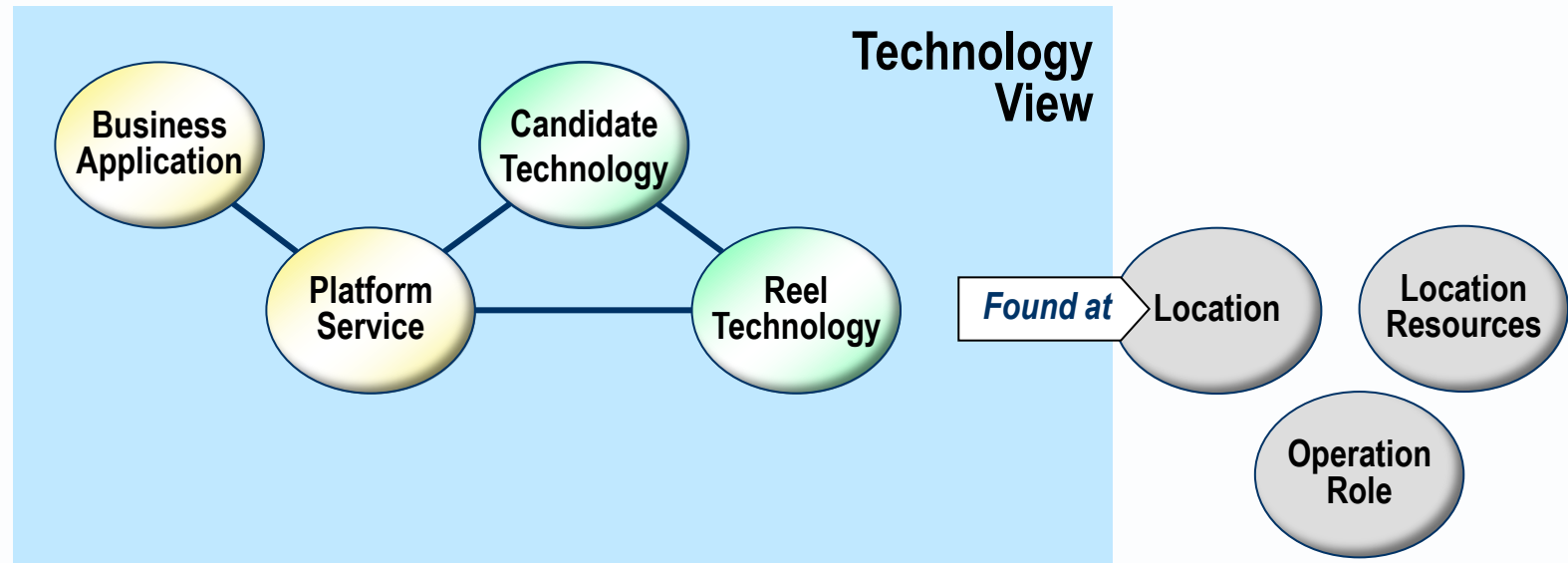


Define location resources

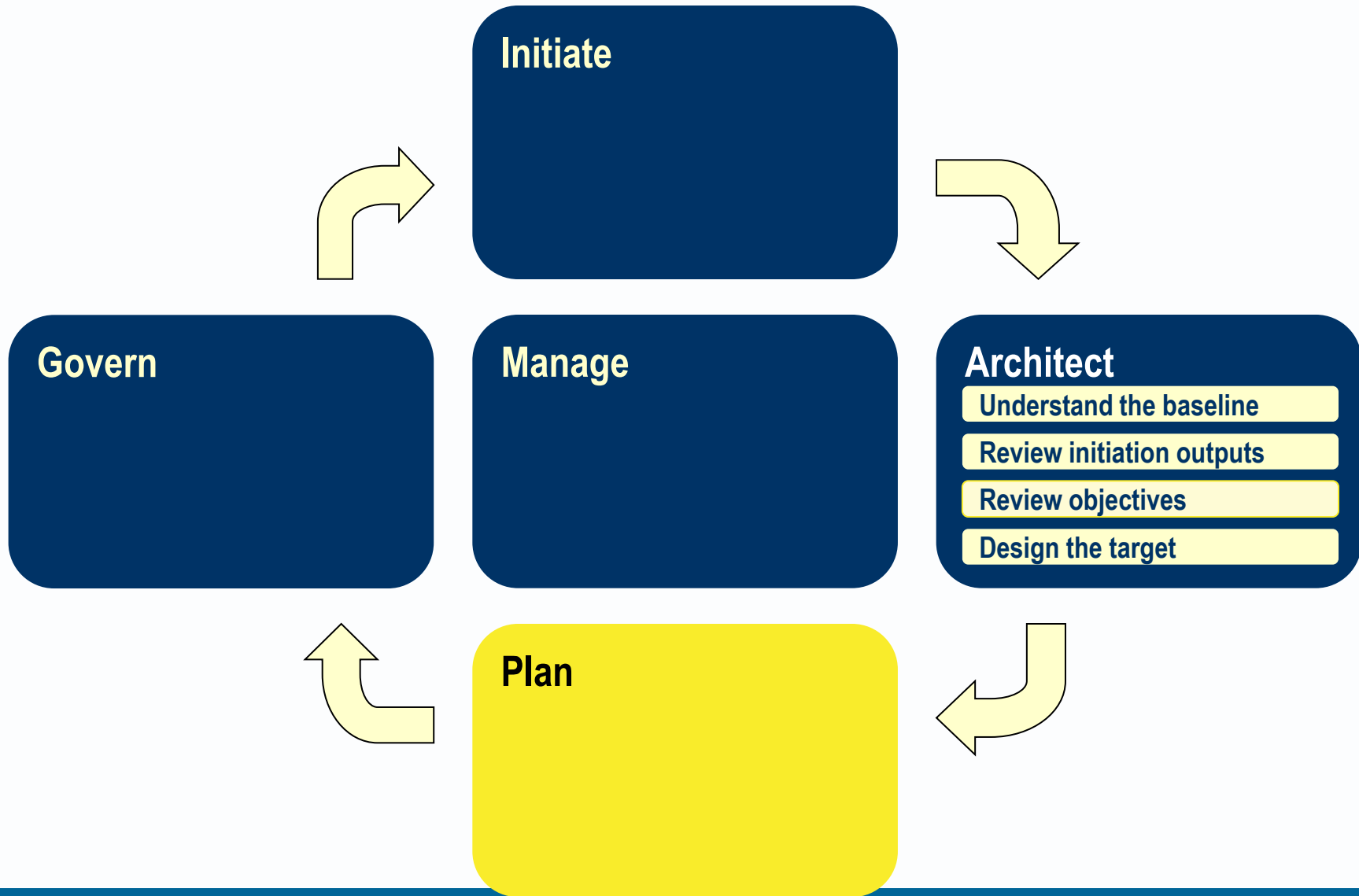
- ▶ Buildings and facilities
- ▶ Heating, ventilation and air-conditioning
- ▶ Transport and phone systems
- ▶ Etc.

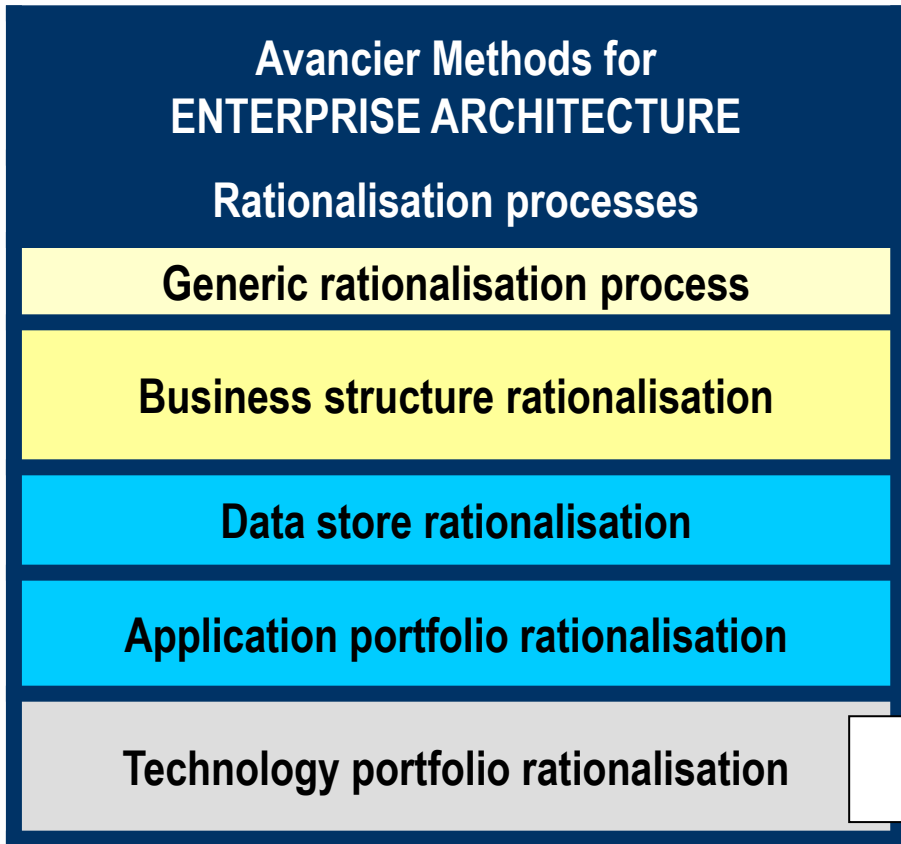


- ▶ Assign to each IT operations unit
 - Goals
 - Budget
 - Manager
 - Human resources



Where in the AM process?





▶ **“navigate the stages of EA maturity” (MIT)**

